

CHANGES TO THE CLAIMS

1. (Withdrawn from Consideration) A finder for an image pickup device, which makes use of a variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

2. (Withdrawn from Consideration) A display for an image pickup device, which makes use of a variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

3. (Withdrawn from Consideration) Variable-focus glasses, which make use of a variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

4. (Withdrawn from Consideration) An optical pickup, which makes use of a variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

5. (Withdrawn from Consideration) An optical measuring device, which make use of a variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

6. (Withdrawn from Consideration) A decentration measuring device, which makes use of a variable hologram element using a polymer dispersed liquid crystal or a polymer

stabilized liquid crystal.

31 7. (Currently Amended) A variable hologram element, ~~which comprises~~ comprising:

a liquid crystal, and

a photonic crystal and a liquid crystal having a two-dimensional or three-dimensional lattice structure.

8. (Withdrawn from Consideration) An endoscope, wherein an image is formed by a digital hologram.

9. (Withdrawn from Consideration) A variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal, wherein a substrate therefor has a lens or mirror action.

10. (Withdrawn from Consideration) A variable hologram element using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal, which meets at least one of conditions (1), (4), (8), (10) and (11).

11. (Withdrawn from Consideration) A variable hologram device, wherein a plurality of variable hologram elements, each using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal, are laminated together with a transparent electrode interposed therebetween.

12. (Withdrawn from Consideration) A finder for an image pickup device, which makes use of a variable hologram element.

13. (Withdrawn from Consideration) The finder for an image pickup device according to claim 12, which further includes a light source having a short half bandwidth.

14. (Withdrawn from Consideration) The finder for an image pickup device according to claim 5, which further satisfies at least one of conditions (5) and (6).

15. (Withdrawn from Consideration) A finder for a digital camera, which makes use of a variable hologram element.

16. (Withdrawn from Consideration) A single-lens reflex, Galilean, Albada or Keplerian type finder, which makes use of a variable hologram element.

17. (Withdrawn from Consideration) A wearable information device making use of a variable hologram element, which is used with a light source having a short half bandwidth.

18. (Withdrawn from Consideration) A wearable information device making use of a variable hologram element, wherein said variable hologram element is used for an adapter or case.

19. (Withdrawn from Consideration) A wearable information device making use of a variable hologram element, wherein said wearable information device may be used in the form of a head mount display and has functions of glasses and a display.

20. (Withdrawn from Consideration) A display for an image pickup device, which

makes use of a variable hologram element.

21. (Withdrawn from Consideration) The display for an image pickup device according to claim 20, which further includes a light source having a short half bandwidth.

22. (Withdrawn from Consideration) The display for an image pickup device according to claim 20, wherein said variable hologram element is used for an adapter or case.

23. (Withdrawn from Consideration) Variable-focus glasses, which make use of a variable hologram element.

24. (Withdrawn from Consideration) The variable-focus glasses according to claim 23, which further includes a light source having a short half bandwidth.

25. (Withdrawn from Consideration) The variable-focus glasses according to claim 23, which are used with a light source having a short half bandwidth.

26. (Withdrawn from Consideration) An optical pickup, which makes use of a variable hologram element.

27. (Withdrawn from Consideration) An optical pickup for disks with varying thicknesses, which makes use of a variable hologram element.

28. (Withdrawn from Consideration) The optical pickup according to claim 26 or 27, which is used with a light source having a short half bandwidth.

29. (Withdrawn from Consideration) An optical measuring device, wherein a variable hologram element is used for optical path switching.

30. (Withdrawn from Consideration) An optical measuring device, which makes use of a variable hologram element.

31. (Withdrawn from Consideration) The optical measuring device according to claim 29 or 30, which is used with a light source having a short half bandwidth.

32. (Withdrawn from Consideration) A decentration measuring device, wherein a variable hologram element is used for optical path switching.

33. (Withdrawn from Consideration) A decentration measuring device, which makes use of a variable hologram element.

34. (Currently Amended) A variable hologram element, which comprises a liquid crystal impregnated into interstitial voids in a photonic crystal having a two-dimensional or three-dimensional lattice structure.

35. (Now cancelled)

36. (Withdrawn from Consideration) An endoscope, wherein an image is formed by a digital hologram.

37. (Withdrawn from Consideration) The endoscope according to claim 36, which further satisfies condition (12).

38. (Withdrawn from Consideration) The endoscope according to claim 36, wherein an image is formed by a digital hologram using infrared light.

39. (Withdrawn from Consideration) The endoscope according to claim 38, wherein visible light is observable.

40. (Withdrawn from Consideration) The endoscope according to claim 36, which further includes a trichromatic light source.

41. (Withdrawn from Consideration) The endoscope according to claim 38, which further satisfies condition (13).

42. (Withdrawn from Consideration) The endoscope according to any one of claims 36 to 41, which further includes a half-silvered mirror prism.

43. (Withdrawn from Consideration) A head mount display, which makes use of a variable hologram element and has functions of glasses and a display.

44. (Withdrawn from Consideration) An optical measuring device, which makes use of a variable hologram element having an optical path switching function.

45. (Withdrawn from Consideration) A device, wherein the hologram element

according to any one of claims 12, 15, 16, 20, 23, 26, 27, 29, 30, 32 and 33 is constructed, using a polymer dispersed liquid crystal or a polymer stabilized liquid crystal.

46. (Previously Added) The variable hologram element of claim 7, wherein any one of the following conditions ~~4, 5, 6, 7, 9 and 10~~ is ~~are~~ satisfied:

$$\underline{|n_p - n_o| < 0.15}$$

$$\underline{0 \leq |\theta| < 30^\circ}$$

$$\underline{0 \leq |\alpha_{\max}| < 40^\circ}$$

$$\underline{n_L = wn_p + (1 - w)(2n_o + n_e)/3}$$

$$\underline{n_p = n_L}$$

$$\underline{|n_p - n_L| < 0.15}$$

where,

n_p is a refractive index of the polymer,

n_o is the refractive index along an axis perpendicular to the longitudinal axis of the liquid crystal molecule,

θ is the optical axis of the finder with respect to normal,

α_{\max} is the maximum value of angle of a light ray passing through the variable hologram with respect to normal,

n_L is the refractive index of the liquid crystal layer

w is the volumetric proportion of the polymer in the liquid crystal layer

n_e is the refractive index along the longitudinal axis of the liquid crystal molecule.

47. (Previously Added) A display having a variable hologram element as set forth in claim 7.

48. (Previously Added) Variable-focus glasses having a variable hologram element as set forth in claim 7.

49. (Previously Added) A finder having a variable hologram element as set forth in claim 7.

50. (Previously Added) An optical pickup having a variable hologram element as set forth in claim 7.

51. (Previously Added) A measuring device having a variable hologram element as set forth in claim 7.

52. (Previously Added) An optical device having a variable hologram element as set forth in claim 7.

B3 53. (Newly Added) A variable hologram element, which comprises a variable refractive-index substance and a photonic crystal having a two-dimensional or three-dimensional lattice structure.

54. (Newly added) A variable hologram element, which comprises a variable refractive-index substance impregnated into interstitial voids in a photonic crystal having a two-dimensional or three-dimensional lattice structure.